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APPLICATION NO.	FILING DATE	FIRST NAMED INVENTOR	ATTORNEY DOCKET NO.	CONFIRMATION NO.
09/926,085	08/27/2001	Takenobu Sunagawa	011080	2186

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EXAMINER

ZALUKAEVA, TATYANA

ART UNIT	PAPER NUMBER
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1713

DATE MAILED: 10/25/2002

10

Please find below and/or attached an Office communication concerning this application or proceeding.

**Office Action Summary**

Application N .

09/926,085

Applicant(s)

SUNAGAWA ET AL.

Examiner

Tatyana Zalukaeva

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-- The MAILING DATE of this communication appears on the cover sheet with the correspondence address --

**Period for Reply**

A SHORTENED STATUTORY PERIOD FOR REPLY IS SET TO EXPIRE 3 MONTH(S) FROM THE MAILING DATE OF THIS COMMUNICATION.

- Extensions of time may be available under the provisions of 37 CFR 1.136(a). In no event, however, may a reply be timely filed after SIX (6) MONTHS from the mailing date of this communication.
- If the period for reply specified above is less than thirty (30) days, a reply within the statutory minimum of thirty (30) days will be considered timely.
- If NO period for reply is specified above, the maximum statutory period will apply and will expire SIX (6) MONTHS from the mailing date of this communication.
- Failure to reply within the set or extended period for reply will, by statute, cause the application to become ABANDONED (35 U.S.C. § 133).
- Any reply received by the Office later than three months after the mailing date of this communication, even if timely filed, may reduce any earned patent term adjustment. See 37 CFR 1.704(b).

**Status**

- 1) ☒ Responsive to communication(s) filed on 27 August 2001.
- 2a) ☐ This action is **FINAL**.                      2b) ☒ This action is non-final.
- 3) ☐ Since this application is in condition for allowance except for formal matters, prosecution as to the merits is closed in accordance with the practice under *Ex parte Quayle*, 1935 C.D. 11, 453 O.G. 213.

**Disposition of Claims**

- 4) ☒ Claim(s) 1-8 is/are pending in the application.
- 4a) Of the above claim(s) 4,5 and 78 is/are withdrawn from consideration.
- 5) ☐ Claim(s) \_\_\_\_\_ is/are allowed.
- 6) ☒ Claim(s) 1-3 and 6 is/are rejected.
- 7) ☐ Claim(s) \_\_\_\_\_ is/are objected to.
- 8) ☒ Claim(s) 1-8 are subject to restriction and/or election requirement.

**Application Papers**

- 9) ☐ The specification is objected to by the Examiner.
- 10) ☐ The drawing(s) filed on \_\_\_\_\_ is/are: a) ☐ accepted or b) ☐ objected to by the Examiner.
- Applicant may not request that any objection to the drawing(s) be held in abeyance. See 37 CFR 1.85(a).
- 11) ☐ The proposed drawing correction filed on \_\_\_\_\_ is: a) ☐ approved b) ☐ disapproved by the Examiner.
- If approved, corrected drawings are required in reply to this Office action.
- 12) ☐ The oath or declaration is objected to by the Examiner.

**Priority under 35 U.S.C. §§ 119 and 120**

- 13) ☒ Acknowledgment is made of a claim for foreign priority under 35 U.S.C. § 119(a)-(d) or (f).
- a) ☒ All   b) ☐ Some \* c) ☐ None of:
1. ☒ Certified copies of the priority documents have been received.
2. ☐ Certified copies of the priority documents have been received in Application No. \_\_\_\_\_.
3. ☐ Copies of the certified copies of the priority documents have been received in this National Stage application from the International Bureau (PCT Rule 17.2(a)).
- \* See the attached detailed Office action for a list of the certified copies not received.
- 14) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. § 119(e) (to a provisional application).
- a) ☐ The translation of the foreign language provisional application has been received.
- 15) ☐ Acknowledgment is made of a claim for domestic priority under 35 U.S.C. §§ 120 and/or 121.

**Attachment(s)**

- 1) ☒ Notice of References Cited (PTO-892)
- 2) ☐ Notice of Draftsperson's Patent Drawing Review (PTO-948)
- 3) ☒ Information Disclosure Statement(s) (PTO-1449) Paper No(s) 8.
- 4) ☐ Interview Summary (PTO-413) Paper No(s). \_\_\_\_\_
- 5) ☐ Notice of Informal Patent Application (PTO-152)
- 6) ☐ Other: \_\_\_\_\_

## DETAILED ACTION

### *Election/Restrictions*

1. Restriction is required under 35 U.S.C. 121 and 372.

This application contains the following inventions or groups of inventions which are not so linked as to form a single general inventive concept under PCT Rule 13.1.

In accordance with 37 CFR 1.499, applicant is required, in reply to this action, to elect a single invention to which the claims must be restricted.

Group I, claim(s) 1-3, 6-8, drawn to a processing aid.

Group II, claim(s) 4, 5, drawn to a thermoplastic composition.

2. The inventions listed as Groups I and II do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, they lack the same or corresponding special technical features for the following reason:

where the group of inventions is claimed in one and the same international application, the requirement for unity of invention referred to in Rule 13.1 shall be fulfilled only when there is a technical relationship among those inventions involving one or more of the same or corresponding special technical features. The expression "**special technical features**" shall mean those technical features that define a contribution which each of the claimed inventions considered as a whole, **makes over the prior art**. The inventions listed as Groups I, II do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, although they share the special technical feature, this special technical feature does not define a contribution over the

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prior art for the following reasons: Claim 1 is either obvious or anticipated by JP 55-005950. Accordingly, the special technical feature linking the inventions, the processing aid comprising acrylate polymerized under specific conditions, does not provide a contribution over the prior art, and no single general inventive concept exists. Therefore the restriction is appropriate

3. This application contains claims directed to more than one species of the generic invention. These species are deemed to lack unity of invention because they are not so linked as to form a single general inventive concept under PCT Rule 13.1.

The species are as follows:

Methacrylate having oxygen atom other than ester bond of claim 2 further disclosed by species of claims 6, 7 and 8.

Applicant is required, in reply to this action, to elect a single species to which the claims shall be restricted if no generic claim is finally held to be allowable. The reply must also identify the claims readable on the elected species, including any claims subsequently added. An argument that a claim is allowable or that all claims are generic is considered non-responsive unless accompanied by an election.

Upon the allowance of a generic claim, applicant will be entitled to consideration of claims to additional species which are written in dependent form or otherwise include all the limitations of an allowed generic claim as provided by 37 CFR 1.141. If claims are added after the election, applicant must indicate which are readable upon the elected species. MPEP § 809.02(a).

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4. The claims are deemed to correspond to the species listed above in the following manner:

6-8

The following claim(s) are generic: 2.

5. The species listed above do not relate to a single general inventive concept under PCT Rule 13.1 because, under PCT Rule 13.2, the species lack the same or corresponding special technical features for the following reasons: the comonomers named in the instant claims 6-8 include three different functionalities, which produce different polymers, and may require different modes of polymerization.

6. During a telephone conversation with Mr. Hanson, esq., on October 15, 2002 a provisional election was made with traverse to prosecute the invention of group I, claim 1-3, 6-8. Affirmation of this election must be made by applicant in replying to this Office action. Claims 4, 5 are withdrawn from further consideration by the examiner, 37 CFR 1.142(b), as being drawn to a non-elected invention. The elected species for the second comonomer is epoxy-containing monomer of claim 6. Therefore claims 7 and 8 are withdrawn from consideration as being drawn to non-elected species.

7. Applicant is reminded that upon the cancellation of claims to a non-elected invention, the inventorship must be amended in compliance with 37 CFR 1.48(b) if one or more of the currently named inventors is no longer an inventor of at least one claim remaining in the application. Any amendment of inventorship must be accompanied by a request under 37 CFR 1.48(b) and by the fee required under 37 CFR 1.17(i).

8. Claims 1-3 and 6 are examined on the merits.

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***Claim Rejections - 35 USC § 102***

9. The following is a quotation of the appropriate paragraphs of 35 U.S.C. 102 that form the basis for the rejections under this section made in this Office action:

A person shall be entitled to a patent unless –

(b) the invention was patented or described in a printed publication in this or a foreign country or in public use or on sale in this country, more than one year prior to the date of application for patent in the United States.

10. Claim 1 is rejected under 35 U.S.C. 102(b) as being anticipated by any one of the following, each one individually: Shimada (U.S. 3,900,453); Yamamoto et al (U.S. 4,762,392); Higuchi et al (U.S. 5,599,888), Maeda (U.S. 4,324,868)

- Higuchi discloses a composition made with polymethyl methacrylate obtained by polymerization of methyl methacrylate and optionally other comonomers in the presence of polymerization initiator, which includes di-tert-butyl peroxide and a chain transfer agent, which preferably include isooctyl mercaptan and n-dodecyl mercaptan (col. 6, lines 25-32, 5-12, 55-67) with the molecular weight within the claimed range (col. 10, lines 35-42).
- Maeda discloses methyl methacrylate suitable for use in molding compositions by polymerizing methyl methacrylate in the presence of an initiator, such as di-tertbutyl peroxide (col. 4, lines 1-6) and chain transfer agents, such as n-butyl, n-octyl-, N-dodecyl mercaptans (col. 4, lines 18-30), Examples 1-3 in col. 7-9,
- Shimada discloses a methyl methacrylate polymer for molding thermoplastic compositions (abstract), obtained by polymerization of methyl methacrylate in the presence of n-octyl, n-dodecyl mercaptanes and the like (col. 4, lines 48-61) and

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peroxide initiator, among which is a di-tert-butyl peroxide is named in col. 5, lines 20-25;

- Yamamoto discloses an optical fiber composition comprising as one of components polymer a methyl methacrylate prepared in the presence of t-butyl mercaptan, as chain transfer agent and di- t-butyl peroxide as an initiator.

11. Claims 1 and 3 are rejected under 35 U.S.C. 102(b) as being anticipated by any one of the following: JP 55-005950, or U.S. 4,833, 221 to Albrech, each one individually.

JP'950 discloses methacrylic resin molding material comprising methyl methacrylate (M) or a mixture comprising 50 wt.% or more of M and a vinyl compound copolymerizable with M is reacted with 0.01- 2 wt.% based on the monomer of a **tert-butyl peroxy ester**, e.g. **tert-butyl peroxyisobutyrate** or tert-butyl peroxy pivalate as a polymerization initiator, and 0.02~3 wt.% based on the monomer of a straight chain **alkyl mercaptan** as a chain transfer agent (see abstract). As a preferred mercaptan JP'950 utilizes n-dodecylmercaptan (line 1, col. 5 of table on page 340). The molecular weight of the polymer is inherently within the claimed range, because products of identical chemical composition cannot have mutually exclusive properties. A chemical compound and its properties are inseparable. Therefore if the prior art teaches the identical chemical structure, the properties and characteristics applicant discloses and/or claims are necessarily present. *In re Spada*, 911 F.2d 705,709,15 USPQ2d 1655,1658 (Fed. Cir. 1990).

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Albrecht discloses a thermoplastic molding composition, made in two steps, wherein on the first step a reaction mixture of methyl methacrylate, styrene or alpha-methylstyrene, maleic anhydride, toluene or butyl acetate (Example 4) as a solvent, tert-butyl peroxide or bis-(tert-butyl peroxy)butane as an initiator, and dodecyl mercaptan as a chain transfer agent are charged to a 3-liter stirred vessel. After a monomer conversion from 83 to 100 percent, the solvent is removed from the reaction mixture in a screw evaporator, leaving a molten molding composition. (col. 4, lines 49-65). The amount of peroxide initiator is generally within 0.02 – 2%, (col. 3, lines 25-30), the examples given in Tables 1 and 2, col. 5 and 6.

12. Claims 1-3 and 6 are rejected under 35 U.S.C. 102(b) as being anticipated by Hoebeke et al (U.S. 5,525,370).

Hoebeke discloses a thermosetting composition comprising as a binder a glycidyl group containing copolymer, which serves as a processing aid for linear carboxyl group polymer (abstract), such copolymer having number average molecular weight 4000 to 10000 (weight average molecular weight is higher) (abstract). The copolymer contains 5-30% of glycidyl methacrylate and 70-95% of methyl methacrylate. In details, the synthesis is described in Example 2, col. 10, 11.

The glycidyl group-containing acrylic copolymer, according to Hoebeke, is prepared by conventional polymerization techniques, either in mass, in emulsion, or in solution in an organic solvent. The monomers are copolymerized in the presence of a free radical polymerization initiator (benzoyl peroxide, dibutyl p r xid, azo-bis-isobutyronitrile, and the like) in an amount representing 0.1 to 1% by weight of the monomers).



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13. Claims 1-3, 6 are rejected under 35 U.S.C. 102(b) as being anticipated by Tugukuni et al (U.S. 4,256,805)

Tugukuni discloses a thermoplastic resin composition, comprising one of the ingredients as a copolymer obtained as follows: water 100 parts styrene 1 part **30 parts methyl methacrylate 20 parts 2-ethylhexyl acrylate 27 parts butyl acrylate 13 parts glycidyl methacrylate 10 parts dodecyl mercaptan 1 part** were radically polymerized according to any known methods.

14. Any inquiry concerning this communication or earlier communications from the examiner should be directed to Tatyana Zalukaeva whose telephone number is (703) 308-8819. The examiner can normally be reached on 9:00 - 5:30.

If attempts to reach the examiner by telephone are unsuccessful, the examiner's supervisor, David Wu can be reached on (703) 308-2450. The fax phone numbers for the organization where this application or proceeding is assigned are (703) 872-9310 for regular communications and (703) 872-9311 for After Final communications.

Any inquiry of a general nature or relating to the status of this application or proceeding should be directed to the receptionist whose telephone number is (703) 308-0651.

**TATYANA ZALUKAEVA**  
**PATENT EXAMINER**

*Tatyana Zalukaeva*  
October 15, 2002

Tatyana Zalukaeva  
Examiner  
Art Unit 1713